Rana University
Faculty of Science
Computer Science Department

Course Title	**Linux Administration**
Lecturer Name	**Baitullah Paktin**
Credit Hours	**4**
Lecture Days	**Monday/Tuesday**
Lecture Timing	**Early Morning**
Class No.	**203**

Course Description

This course will equip the students with the RHEL7 administrative skill. The course has three main phases which start with the basics of the course then to the medium level and finally the .advance RHEL7 administrative tasks. The course is about 90% practical

Course Objective

This course will provide a basic to advance RHEL7 skills to the students, the students will learn how to implement, manage, control and administer a network using the RHEL7 operating system by the end of this course.

Teaching Method

- Lecture/Explanation/short notes
- Previous lesson’s review
- Discussion
- Questioning
    - Hands-on/Inquiry
- Presentations
    - Cooperative groups
    - Other _____

Learning Outcome

:By the end of the course, students will be able to
.Understand all the Open source software usage and its philosophy .1
.Understand RHEL7 .2
.To manage files using VIM editor and getting help in linux .3
.Assigning policies on groups and users and granting folder permissions .4
.Display the Linux processes .5
Provide the services & Daemons along with logs .6
.Installing, updating the software and services through YUM server .7
Manage network and SSH configuration .8
.Setting IP addresses .9
.Managing SELinux .10
.Configuring Firewall .11
.Installing and managing the DNS server .12
.Illustrate Apache server along with its installation process .13
.Configuring Mail server .14
.Install DHCP and its configuration .15

Course Plan

Weeks	Chapters	Teaching Method	Remarks
1	Introduction of the course: - Open source vs non-open source software - Philosophy of open source software - Open source software usage - Introduction to RHEL7 desktop environment - RHEL7 installed - RHEL7 terminals - Bash shell - Executing commands using bash shell - Basic commands RHEL7 file system hierarchy	Theory + Practical	homework
2	**Managing files & getting help in Linux** - Creating directories and files - Copying directories and files - Moving directories and files - Renaming directories and files - Deleting directories and files **COMPUTER LAB (STUDENTS PRACTICE)**	Theory + Practical	homework
3	**Getting Help in Linux & working with files using vim and gedit editors:** - Getting help using man command - Getting help using –help command - Getting help using pinfo command	Theory + Practical	homework

	- SoS Report - Viewing & creating files with cat command - Editing files with vim editor - Editing files with gedit editor **COMPUTER LAB (STUDENTS PRACTICE)**		
4	**local users and groups and Managing files & folder permission** - Local users and groups in Linux - Creating users and groups - Deleting users and groups - Adding users into groups - User ID and Group ID in Linux - Resetting users password - Password policies **COMPUTER LAB (STUDENTS PRACTICE)**	Theory + Practical	homework
5	**Managing files & folder permission** - Default file and directory permission - Setting file and directory permissions - Modifying files and directory permission - Setting umask value **COMPUTER LAB (STUDENTS PRACTICE)**	Theory + Practical	homework
6	**Displaying Linux Process:** - Displaying Linux process using different commands - Working with Linux processes & Killing Linux Processes **COMPUTER LAB (STUDENTS PRACTICE)**	Theory + Practical	homework
7	**Services & Daemons plus logs & yum server:** - Viewing Linux services - Starting, stopping, restarting, disabling, enabling services - Viewing Linux logs using different commands - Installing, uninstalling and updating software using yum **COMPUTER LAB (STUDENTS PRACTICE)**	Theory + Practical	homework
8	**Managing RHEL7 Networking & SSH configuration** - Viewing the current IP add of the system - Setting dynamic IP address - Setting static IP, DNS server IP and default gateway - Editing the ip configuration file - Different usage of the nmcli	Theory + Practical	homework

	command - Setting hostname and viewing hostname configuration file - Configuring SSH - Access remote system using SSH **COMPUTER LAB (STUDENTS PRACTICE)**		
	Mid-Term Exam		
9	**Copying files between systems & controlling access to the files** - Copying files between systems using scp - Access Control List (ACL) - Securing files with ACL - Interpreting ACLs - **COMPUTER LAB (STUDENTS PRACTICE)**	Theory + Practical	homework
10	**Managing SELinux security** - SElinux - Changing SELinux modes - Changing SELinux Booleans - **COMPUTER LAB (STUDENTS PRACTICE)**Designated and non-designated ports - Switch priority - Managing STP - Working with switch-port security **COMPUTER LAB (STUDENTS PRACTICE)**	Theory + Practical	homework
11	**Managing & sharing files with NFS** - NFS installation - NFS configuration - Managing files with NFS **COMPUTER LAB (STUDENTS PRACTICE)**	Theory + Practical	homework
12	**Managing Firewall & Network Port Security** - Checking Firewall status - Firewall zones - Allowing or blocking services in firewall - Allowing or blocking port numbers in firewall - Port-forward configuration - Creating rich rules in firewall - Assigning different NICs into different zones - Working with firewall service **COMPUTER LAB (STUDENTS PRACTICE)**	Theory + Practical	homework
13	**Installation and management of DNS server** - What's DNS sever	Theory + Practical	homework

	- DNS server installation - Editing DNS zone files - Adding DNS records into DNS zone files - DNS uninstallation **COMPUTER LAB (STUDENTS PRACTICE)**		
14	**Apache Web Server:** - what is apache web server - Apache HTTPD - Installation - Uninstallation - Working with DHCP configuration file **COMPUTER LAB (STUDENTS PRACTICE)**	Theory + Practical	homework
15	**Mail server configuration:** - what's mail server - mail server installation - mail server uninstallation **COMPUTER LAB (STUDENTS PRACTICE)**	Theory + Practical	homework
16	**DHCP Server:** - DHCP - DHCP server installation - DHCP Server Configuration - DHCP Server uninstallation **COMPUTER LAB (STUDENTS PRACTICE)**	Theory + Practical	homework
Reference	Red Hat System Administration I Red Hat System Administration II Red Hat System Administration III		

Class Discipline

To maintain control and manage the classroom properly I'm applying the following rules and discipline in my classes.

- Trying to include rules on my syllabus.
- Talk about my rules on the first day of class
- Trying to know students by name.
- Trying to act professionally.
- Exploring the discipline issue before acting.

Assessment Method

A useful beginning point in determining the optimum mix of assessment methods is the resources and I select the

Following assessment method.

- Independent Work
- Guided Instruction
    - Practice Sheets

- Project/Presentation
    - Conference with students
    - Test/Quiz
    - Other _____

Exam Method

Not allowing the students to whisper during the exam. (if catcht the place will be -changed)

.Cheating by any means the paper will be canceled -

.Not allowing to use cell phone, mobile, tablets …etc-

.Exam will be conducted written -

Prepared by:

Approved by

Baitullah Paktin

Fardin